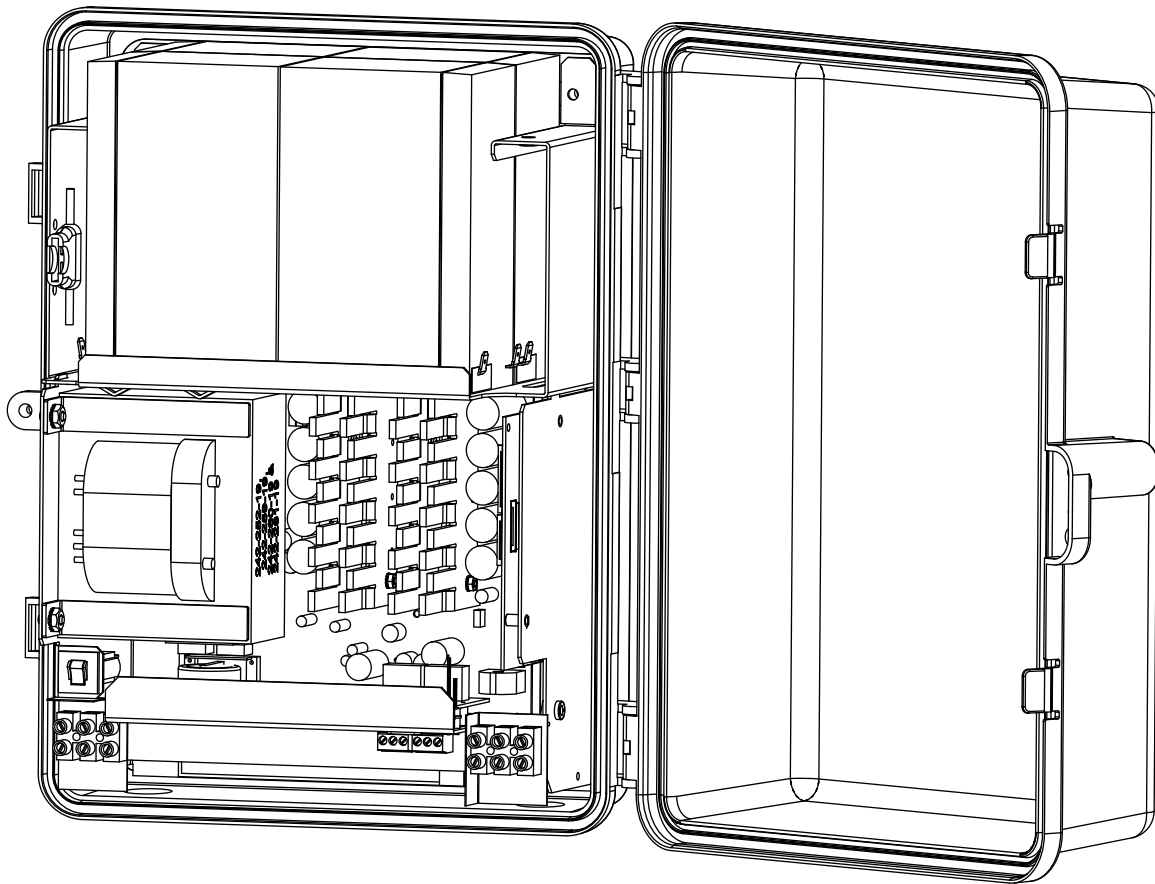




Novus Micro Secure 100

Uninterruptible Power Supply



Operator's Manual

017-220-B0 Rev. 01/07

Alpha Technologies

Power Alpha Technologies 

Operator's Manual

Novus Micro Secure 100

Uninterruptible Power Supplies

From Alpha Technologies (www.alpha.com)

017-220-B0 Rev. 01/07

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The emergency shutdown procedure is on the inside rear cover

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DANGER

Risk of Electrical Shock



A dangerous voltage exists in this area. Use extreme caution at all times.



Attention: Important operating instructions. Follow them exactly.

1 Safety Checklists

1.1 UPS Safety Checklist



This Uninterruptible Power Supply (UPS) is to be installed by people trained in the safe use of high-energy power supplies and their batteries. Also assumed is knowledge of the local electrical code(s) and their safe application.



DANGER: NEVER let water from rain, a hose, tap or a sprinkler's output, road splash or other water sources enter the UPS to prevent accidental shorts, shocks or electrocutions.



DANGER: This unit does NOT have an on/off switch. Whenever it is connected to line or battery power, power is present at the output. Use extreme caution at all times.

- ☐ Do not work alone under hazardous conditions.
- ☐ Read this manual. If you have any questions about safe installation, operation or maintenance, contact Alpha Technologies's customer service department.
- ☐ Carefully unpack the components. Report any shipping or other damage at once.
- ☐ **Always** assume electrical connections or conductors are live. Turn off all circuit breakers and double-check with a voltmeter before performing installation or maintenance.
- ☐ Before installation, verify the input voltage and current requirements of the load are met by the UPS's output (See specifications). Verify the line voltage and current meet the UPS's input requirements.
- ☐ Place a warning label on the utility panel to tell emergency personnel a UPS is installed.
- ☐ Use proper lifting techniques when lifting or moving the UPS or its components.
- ☐ This UPS has more than one live circuit. AC power may be present at the outputs even if the UPS is disconnected from line or battery power.
- ☐ This UPS can be operated to a maximum operating temperature of 50°C. Also see the specifications section for temperature ratings.
- ☐ At high ambient temperature conditions, the UPS's surface can be very hot to the touch.
- ☐ There is a Lithium battery inside the UPS. There is a danger of an explosion if it is incorrectly replaced. Replace it only with the same type or an equivalent battery as recommended by the manufacturer. Dispose of the old battery as instructed by the manufacturer.

1.2 Battery Safety Checklist



Battery Emergency Procedures

If electrolyte splashes on your skin, immediately wash the affected area with water. If electrolyte gets into your eyes, wash them for at least 10 minutes with clean running water or a special neutralizing eye wash solution. Seek medical attention at once.

Neutralize spilled electrolyte with special neutralizing solutions in a “spill kit” or a solution of 1 lb. (0.45 kg) of baking soda (bicarbonate of soda) in 1 gallon (3.9 L.) of water.

- ☐ Battery installation and servicing should be done or supervised by personnel knowledgeable about batteries and the required precautions.
- ☐ **Always** replace batteries with the same type, numbers, and ratings. **Never** install old or untested batteries. One sealed lead-acid battery is rated to a maximum voltage of 12VDC.
- ☐ **CAUTION: Never** dispose of batteries in a fire. The batteries may explode. Follow the manufacturer's directions for safe battery disposal.
- ☐ **CAUTION: Never** open or damage the batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic and hazardous to the environment.
- ☐ **CAUTION:** A battery can present a risk of electrical shock and high short-circuit current. The following precautions should be observed when working on batteries:
 - Remove watches, rings, or other metal objects.
 - Use tools with insulated handles.
 - Wear rubber gloves and boots.
 - Do not lay tools or metal parts on top of batteries.
 - Disconnect charging source prior to connecting or disconnecting battery terminals.
 - Determine if the battery is inadvertently grounded. If inadvertently grounded, remove source from ground. Contact with any part of a grounded battery can result in electrical shock. The likelihood of such shock can be reduced if such grounds are removed during installation and maintenance (applicable to equipment and remote battery supplies not having a grounded supply circuit).
- ☐ **Never** let live battery wires touch the UPS, the enclosure or any other metal objects. This can cause a fire or explosion.
- ☐ Lead-acid batteries can release Hydrogen gas. **Never** expose the UPS or enclosure to open flames or sparks to prevent a fire or explosion.
- ☐ Inspect the batteries once a year for signs of cracks, leaks or swells. Replace as needed.
- ☐ If you have batteries in storage, charge them at least once every three months for optimum performance and to extend their lifetime.

2 Unpacking and Inspection Checklist



If items are missing or damaged, contact Alpha Technologies and the shipping company at once. Most shippers have a short claim period.

Carefully remove the UPS from the shipping container. Inspect the contents and make sure the following items are included:

- ☐ 1 Micro Secure UPS.
- ☐ 1 Micro Secure Operator's Manual.
- ☐ 4 Phillips-head wood screws.
- ☐ 2 or 4 batteries as ordered.
- ☐ 1 battery fuse (Standard 30A automotive fuse).
- ☐ Any ordered options.

Save The Shipping Container

To return the Micro Secure for servicing, pack it in the original shipping container. Alpha Technologies is not responsible for any damages caused by improper packaging of returned products.

Read This Manual

Before installation become familiar with the Novus Micro Secure by reviewing the procedures and drawings in this manual. If you have any questions about the safe installation, operation or maintenance of this UPS, contact Alpha's customer service department at www.alpha.com.

3 The Novus Micro Secure

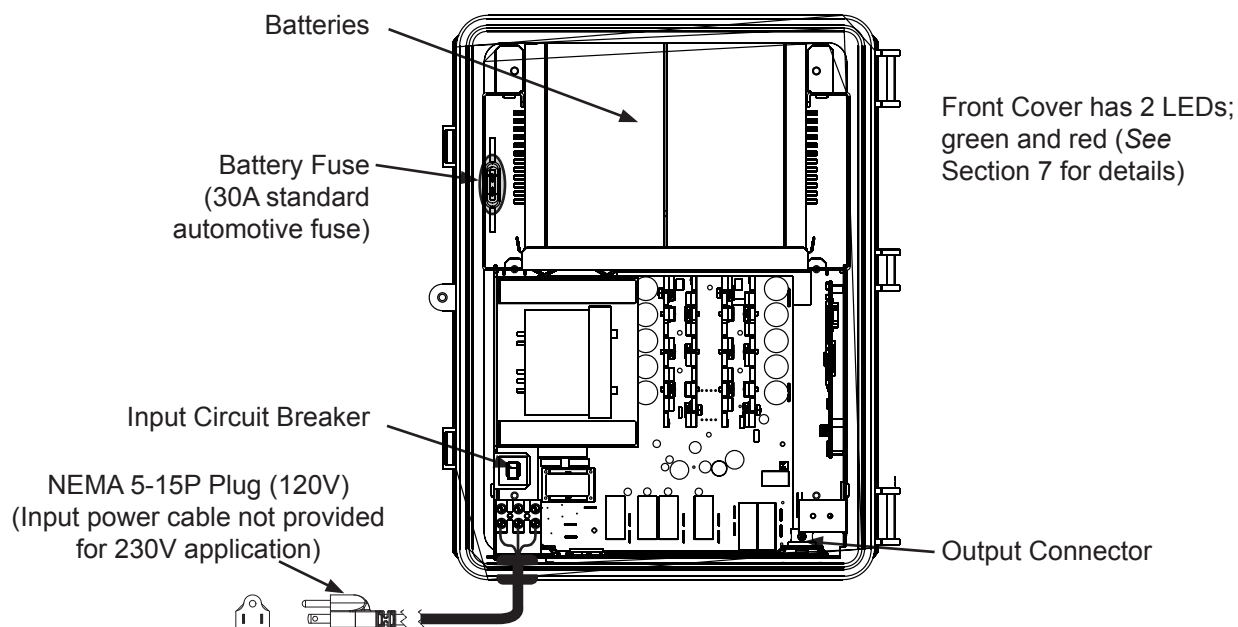


Figure 3.1
Novus Micro Secure - Cable Version

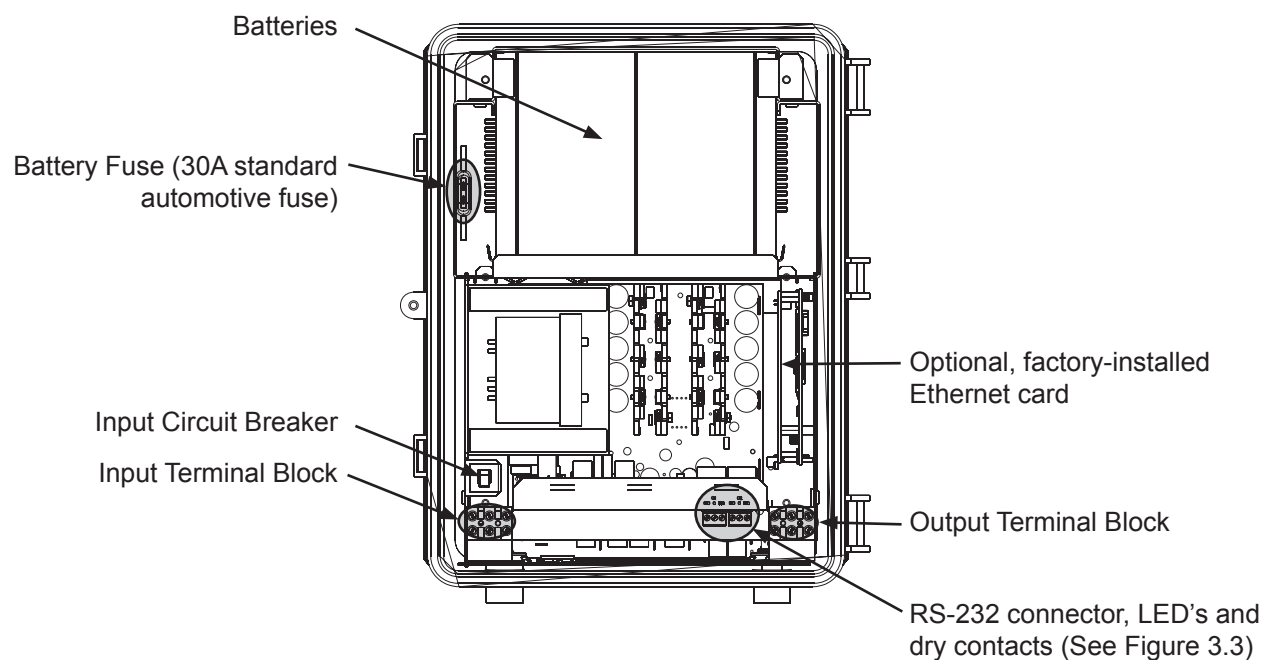
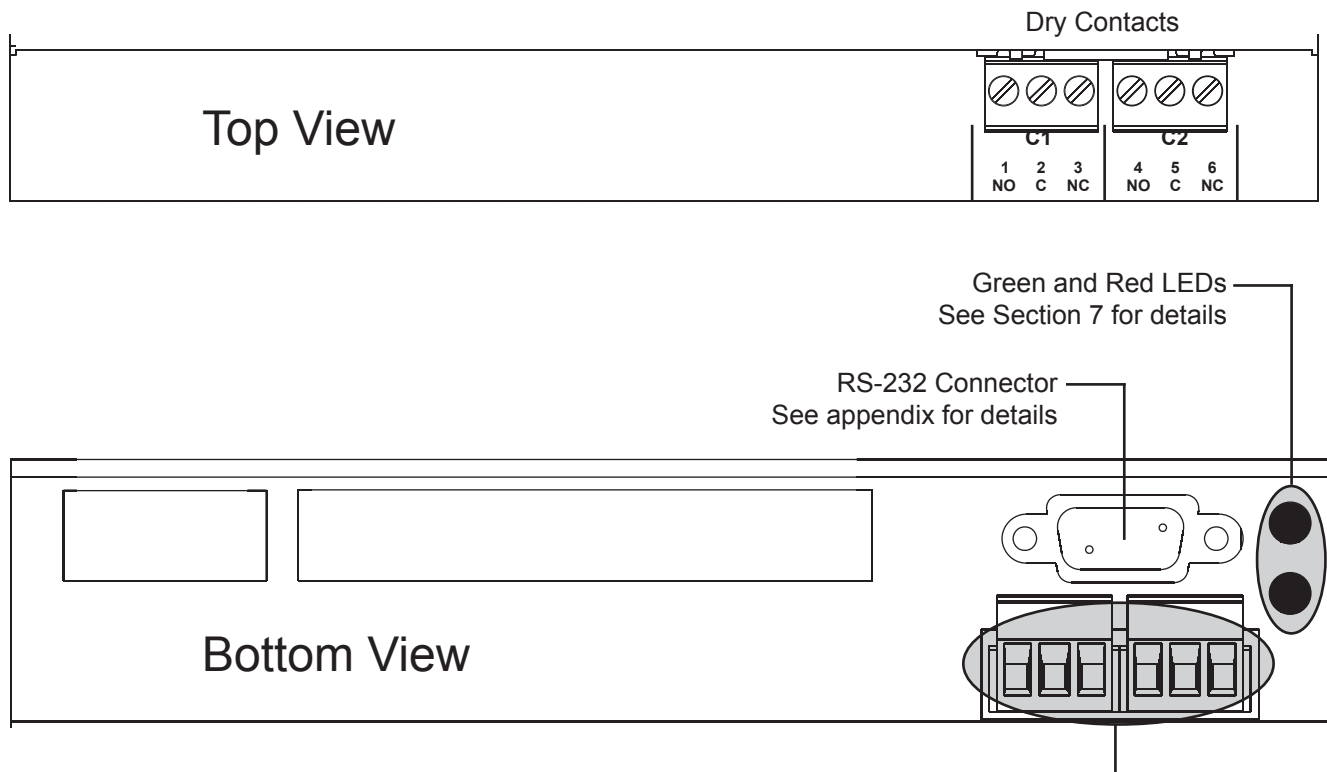


Figure 3.2
Novus Micro Secure - Surveillance Version

The surveillance version of the Novus Micro Secure has a bar with monitoring LEDs, an RS-232 connector (See Appendix) and dry contacts for attachment of an external monitoring panel.



- C1 is the “On Batt” contact, triggered when the UPS is in Battery mode and backup battery power is provided to the load.
- C2 is the “Low Batt” contact, triggered when the battery voltage falls below a pre-programmed setting to indicate the battery is almost discharged.
- These contacts can be changed from these factory defaults to suit your conditions if you have connected a computer to the unit (See Appendix Section A4).

Figure 3.3
Output Connectors And Monitoring LEDs

4 Site Preparation Checklist

- ☐ Grounding



The UPS MUST be correctly grounded for proper operation.

Older facilities may have inadequate electrical grounding. Inspection must be performed by a qualified electrician before installation to ensure that grounding meets the local electrical code.

- ☐ Branch Circuit Breaker Protection



To provide branch circuit protection, the utility line attached to the UPS's input MUST be protected by a circuit breaker certified for this use as per the local electrical code.

The breaker's minimum size is calculated by the following formula:

$$\text{Minimum Breaker Size} = \text{UPS's maximum input current} / 0.8$$

The UPS's maximum input current is read off of the UPS's nameplate. For example, if the nameplate gives the maximum input current as 20A, the circuit breaker should be rated at least 25A..

- ☐ Disconnects



The input and output lines to and from the UPS MUST have disconnect devices attached.

- ☐ Site Requirements

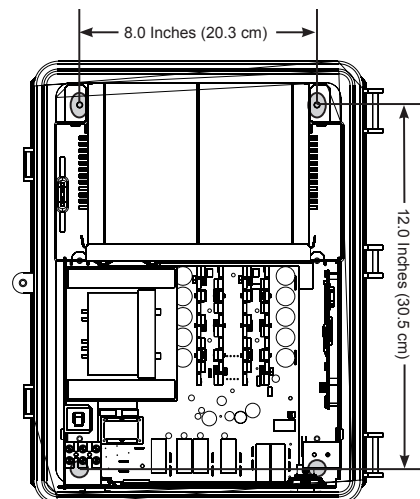
Install the UPS and batteries on a surface that supports a minimum weight of 45.0 lbs (20.4 kg). The input wiring must reach a suitably grounded power outlet and the load wiring must reach the UPS's output terminal block.

5 Mounting the UPS

5.1 Wall Mounting

The UPS can be mounted to a wall or to wall studs. The wall or studs should be able to hold a weight of at least 45.0lbs (20.4kg) and they must be plumb and the case mounted so it is level.

Using the case as a template, secure the case to the wall with the 4 Phillips-head wood screws supplied with the unit.



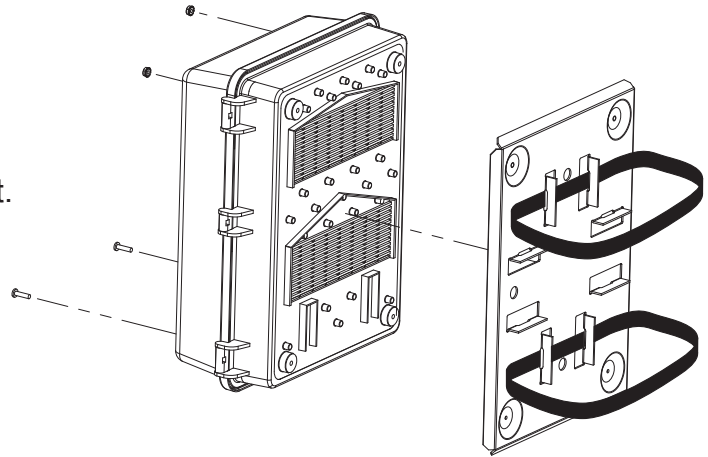
5.2 Pole Mounting

The Novus Micro Secure can be pole mounted with the optional mounting bracket (Alpha Kit# 740-751-21). It allows you to mount to either a vertical or horizontal, steel, concrete or wooden pole.

5.2.1 Steel or Concrete Pole Mounting

To strap mount the UPS to the pole you need the optional mounting bracket and 2, ½ inch straps (Band-It #C20499 straps, #C00369 Tool and #C25499 Buckle or equivalent).

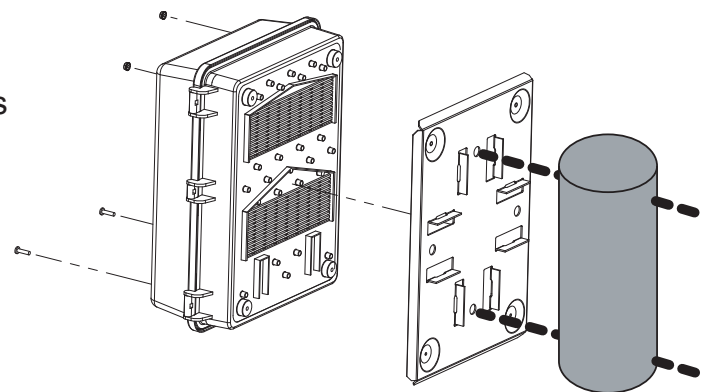
1. Attach the straps to the mounting bracket.
2. Attach the bracket to the pole.
3. Secure the UPS enclosure to the mounting bracket with the 2 mounting screws and 2 nuts provided with the kit.



5.2.2 Wooden Pole Mounting

To bolt the UPS to the pole you need the optional mounting bracket and 2, ½ inch bolts (not provided) to fit the pole.

1. Drill holes into the pole to fit the bolts.
2. Attach the bracket to the pole.
3. Secure the UPS enclosure to the mounting bracket with the 2 mounting screws and 2 nuts provided with the kit.



6 Connecting the UPS



DANGER: This UPS does **NOT** have an on/off switch. Whenever the UPS senses battery or line power, it is active and power is present at the output. Before starting, make sure line power is turned off and that the UPS's battery fuse is removed.

Tools and Materials Required

- Slotted-tip screwdrivers for tightening screws on terminal blocks.
- DC voltmeter.
- Maximum of 12 AWG wire for wiring the input and output terminal blocks.
- If used, maximum of 16 AWG wire for wiring the dry contact terminal blocks.

Procedure

There are 2 different versions of the Novus Micro Secure. See Figures 3.1 to 3.3 for the differences. For the surveillance version, you may have to connect the dry contact terminal block outputs and the RS-232 connector depending on your requirements.

Step 1: Wire the Input and Output Connectors

1. Connect the load wiring to the output terminal block (surveillance version) as labeled. Torque to 7.0 lb-in (0.8 Nm).

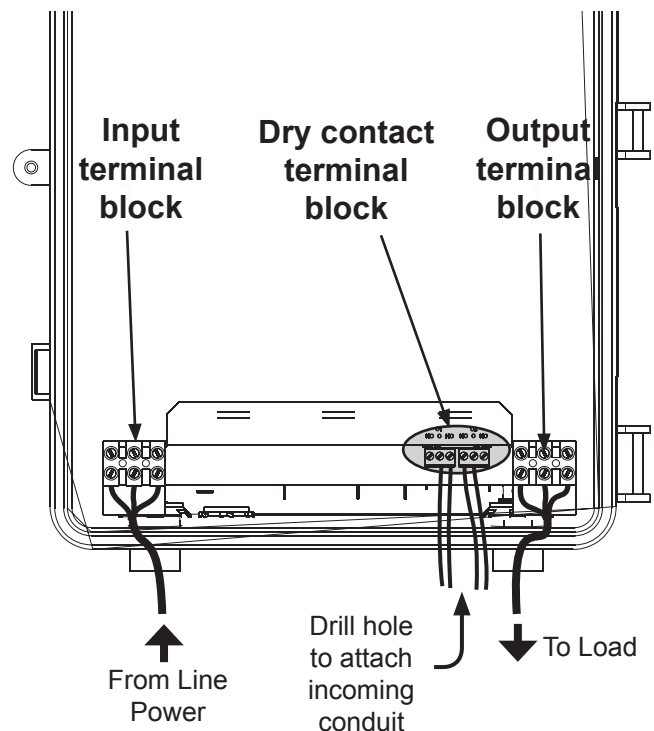
Note: For the cable TV version, connect the load cable to the output cable connector.

2. On the surveillance version, if used, connect the dry contact terminal blocks and the RS-232 or Ethernet connectors (Also see the Appendix) according to Figure 3.3.

Note: If using a conduit, drill a 1/2" hole to attach a matching conduit.

3. Wire the input terminal block according to its label. Torque to 7.0 lb-in (0.8 Nm).

Note: The cable version has a 6-ft (2m) permanently connected input power cable with a NEMA 5-15P plug for 120V application (for 230V application, connect the line power to the input terminal block through the provided 1/2" knockout hole).





DANGER: Before proceeding, verify the line wire is attached to the line terminal block, the ground wire is attached to the ground terminal block and the neutral wire is attached to the neutral terminal block to prevent accidental shocks or electrocutions.

Step 2: Install and Wire the Batteries



DANGER: Make sure the battery fuse is removed before wiring the batteries.

1. Install the 4 batteries and wire them up as shown in Figures 6.1 and 6.2.

Note: If using only 2 batteries, install them in the Battery #1 and Battery #2 positions and wire them up as shown in Figure 6.2, except the wires to Battery #3 and #4 are not used.

2. Use a DC voltmeter to verify the battery string's polarity and voltage (24VDC). Perform troubleshooting if necessary.

Connection Finished

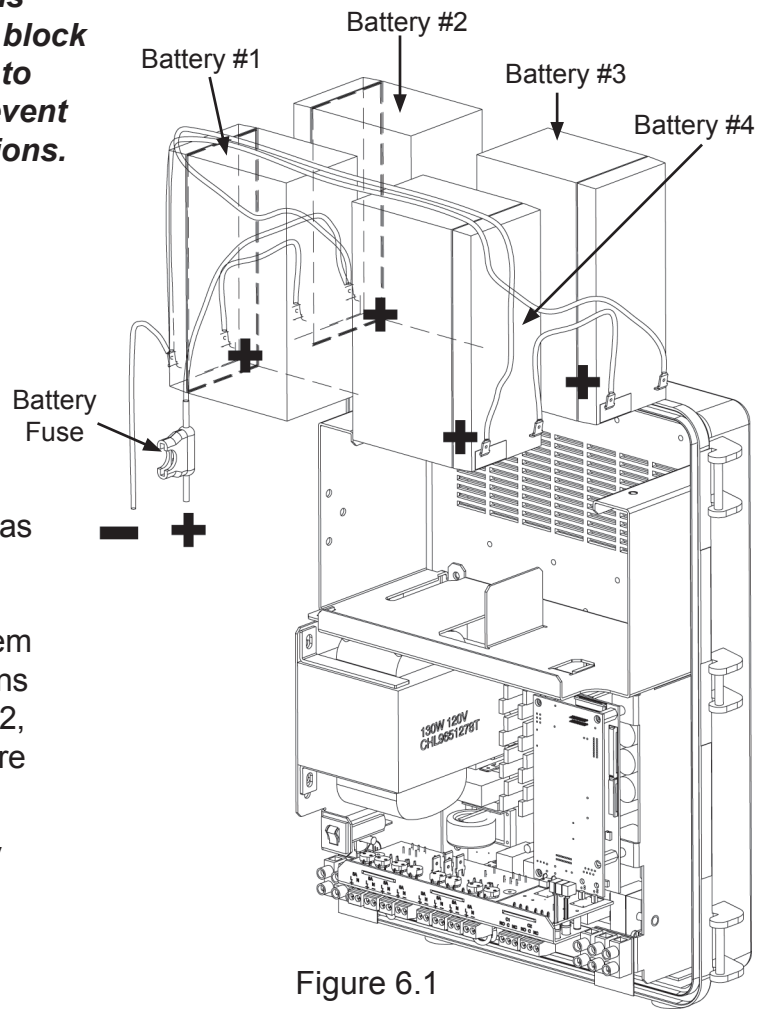


Figure 6.1
Battery Locations

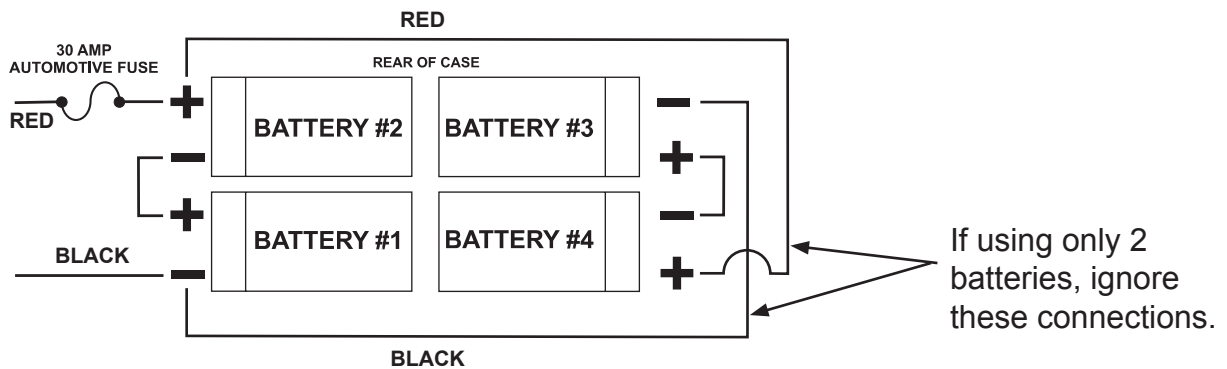


Figure 6.2
Battery Wiring Diagram

7 Powering ON the UPS

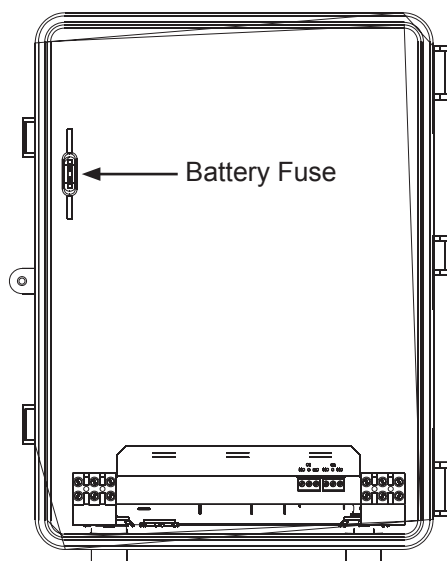
This procedure assumes the line is qualified and the batteries are fully charged.

1. Install the battery fuse by snapping it quickly into its fuse holder. Make sure it is firmly secured in the mount.

Note: You may hear a buzzing sound or see sparks when installing the fuse. This is normal and will not damage the UPS.

2. Turn on the Line power.
3. Ensure the LEDs operate (see **LED Descriptions** table below).

Note: When power is first applied, both LEDs light up and then only the green light remains on if the UPS is in Line mode.



Installation and Powering On Finished

LED Descriptions

LED	Description
GREEN OFF	The UPS's inverter is turned off. Line power goes straight to the load.
GREEN ON	The UPS is turned on. Line power is provided to the load.
GREEN FLASHING	The UPS's inverter is on. Backup battery power is provided to the load.
RED ON OR FLASHING	The UPS has a malfunction. See the troubleshooting table below.

Troubleshooting

SYMPTOM	Action
NO OUTPUT POWER	<ol style="list-style-type: none"> 1. Is utility power connected? 2. Is the battery fuse installed? 3. Are the batteries discharged? 4. Is the input circuit breaker open?
NO BATTERY BACKUP POWER	<ol style="list-style-type: none"> 1. Is the battery fuse connected or is it blown? 2. Are the batteries discharged?
NO POWER TO LOAD	<ol style="list-style-type: none"> 1. Is the UPS's output properly connected to the load? 2. Is the battery fuse connected or is it blown and is the utility power connected to UPS's input connector?

NOTE: If you have the RS-232 computer communication enabled (See Appendix Section A1), then you can do additional troubleshooting as outlined in Sections A2 and A6 of the appendix.

Mechanical Specifications		Electrical Specifications	
Dimensions, in (mm) H x W x D		Input	
		Voltage (nominal, VAC)	120 or 230 (optional 220)
Weight, lb (kg)		Frequency, Hz $\pm 5\%$	60/50
		Current, A	<ul style="list-style-type: none"> 2.0 @ 120VAC 1.0 @ 220/230VAC
Mounting	<ul style="list-style-type: none"> Wall Pole (with optional bracket) 	Output	
Humidity (operating)	Up to 95% (non-condensing)	Voltage (nominal, VAC)	Surveillance version: <ul style="list-style-type: none"> 120 or 230 $\pm 10\%$ 24, -5% to $+20\%$ Cable version: <ul style="list-style-type: none"> 63 $-10/+13\%$
Temperature Range, °F (°C)		Frequency, Hz $\pm 5\%$	60/50 (auto-frequency detection)
Operating	–40 to 122 (–40 to 50)	Current, A	<ul style="list-style-type: none"> 4.20 @ 24VAC 1.59 @ 63VAC 0.83 @ 120VAC 0.43 @ 230VAC
Storage	–40 to 167 (–40 to 75)	Power, W/VA	100 total including auxiliary output.
Altitude, ft (m)		Waveform	Sine wave
Operating	Up to 12,000 (3658)	Load Crest Factor	3:1 (load dependent)
Storage	Up to 15,000 (4572)	Output Voltage Distortion	< 3% THD (resistive load)
AC Input and Output Connectors	3-position terminal block (maximum 10 AWG)	Efficiency (typical) (backup)	>85% >75%
RS-232 Connector	Surveillance version: <ul style="list-style-type: none"> DB-9, female Cable version: <ul style="list-style-type: none"> None 	Transfer Time, mS	
Dry Contacts	Surveillance version: <ul style="list-style-type: none"> Two programmable dry, single pole double-throw relays. Contacts are rated at 120VAC, 1A. The factory default settings are: C1: On battery C2: Low battery Cable version: <ul style="list-style-type: none"> None 	AVR to Backup	5 (typical)
Display	Surveillance version: <ul style="list-style-type: none"> Two LEDs (1 red and 1 green) via communication board. Cable version: <ul style="list-style-type: none"> Two LEDs (1 red and 1 green) mounted on the enclosure visible from the outside. 	Backup to AVR	3 (typical)
Regulatory		Line Qualification Time, seconds	3
Electrical Safety	UL 1778, CSA 22.2 #107.1, EN50091-2, EN60950	Battery String Voltage, VDC	24
Emission	FCC subpart J, level A for conducted and radiated EMI; CISPR 22, EN55022 level A for conducted and radiated EMI.	Battery Charger Current, A	3.0
Packaging	Designed to meet requirements for ISTA program.	Battery Charger Temperature Compensation	–5mV/°C/Cell default (User selectable @ –2.5, –4, –5 and –6mV/°C/Cell via RS-232 connection)

Appendix

This Section Tells You How To Operate the Novus Micro Secure
With RS-232 Computer Commands

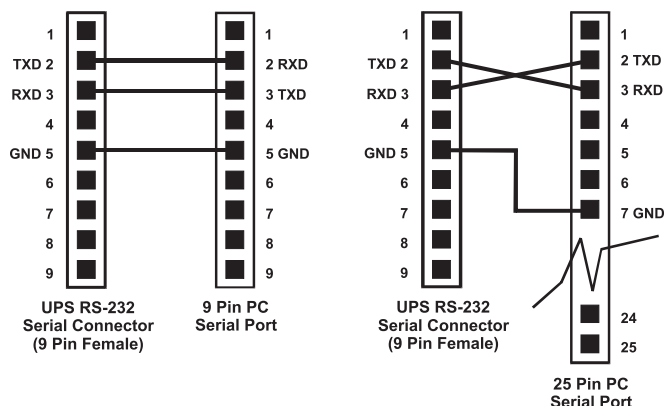
- Connecting the RS-232 Port (Section A1)
 - Using the Main Menu (Section A2)
- Operating the Micro Secure UPS (Section A3)
- Programming the Dry Contacts and the Clock (Section A4)
 - Accessing the 100-Event Log (Section A5)
- Installing and Using the Novus User Software (Section A6)

A1 Connecting the RS-232 Port

The surveillance version of the Novus Micro Secure has a DB-9 female connector. When connected to a PC with Window's HyperTerminal or other terminal emulation software, it can be remotely monitored and controlled with it's command-line system (See Sections A2 to A5). The Novus User Software provides a Windows or Web browser type of control (See Section A6).

Procedure

1. Connect a 9-pin, fully shielded, straight-through DB-9 to DB-9 connector cable between the computer's port and the UPS's port.



2. Configure the communications parameters to the values shown in the terminal set up table.

RS-232 Wiring Finished

Terminal Set Up Table			
Emulation Type	VT 100 or Compatible	Backspace	N/A
Duplex Mode	Half Duplex	Break Length	N/A
Xon/Xoff Flow Control	None	Emulation Type	N/A
RTS/CTS Flow Control	Off	Communication Parameters	
Line Wrap	On		
Screen Scroll	On	Baud Rate	2400 bps
CR Translation	CR	Data Format	8 Data, No Parity, 1 Stop Bit

A2 Using the Main Menu

The UPS's main menu screen runs on a command line system (Figure A2.1). This program does not recognize the backspace or delete keys even if appears that way on the monitor. If you make a mistake and press ENTER, the UPS echoes the command back exactly as you typed it. Press ENTER and retype the command again.

If you choose not to use the command line system, you can use the Novus User Software to run and monitor the UPS (See Section A6).

A2.1 Main Menu Screen

The main menu screen (Figure A2.1) shows the UPS's current input and output values, displays if any faults or alarms are present and gives access to the submenus. It is reached from anywhere in the menu tree (Figure A2.2) by typing **0** and pressing **ENTER**. The UPS is controlled by submenu 3.

To access a particular submenu, type in the **submenu number** and press **ENTER**. To update the main menu screen, press **ENTER**.

The complete menu tree is given in Figure A2.2. Tables describing the Line Status, Output Status, Faults and Alarms displays are given in Sections A2.3, A2.4 and A2.5.



- *The readings on the main menu screen do not automatically update to reflect changes in the UPS's status. Press ENTER to update the screen.*
- *For many functions you need to enter a password. The factory set password is 1111.*

Note: For cable version, this line will read "Secure CAB".

Submenu Numbers
(Figure A2.2)

Status, Faults and Alarms Displays
(Sections A2.3 to A2.5)

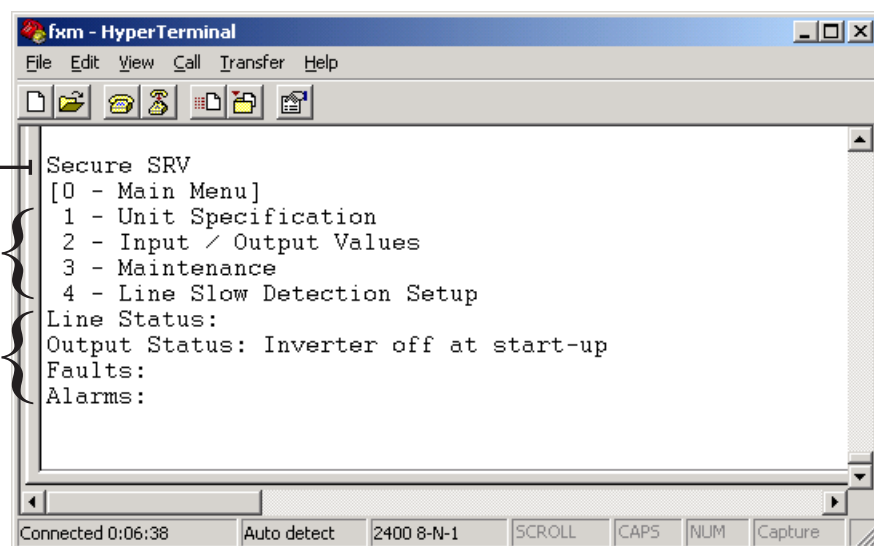


Figure A2.1
Main Menu Screen

A2.2 RS-232 Menu Tree

Submenus #1, 2 and 4 are read-only screens for monitoring the UPS. To control the UPS, use submenu #3, the Maintenance submenu.

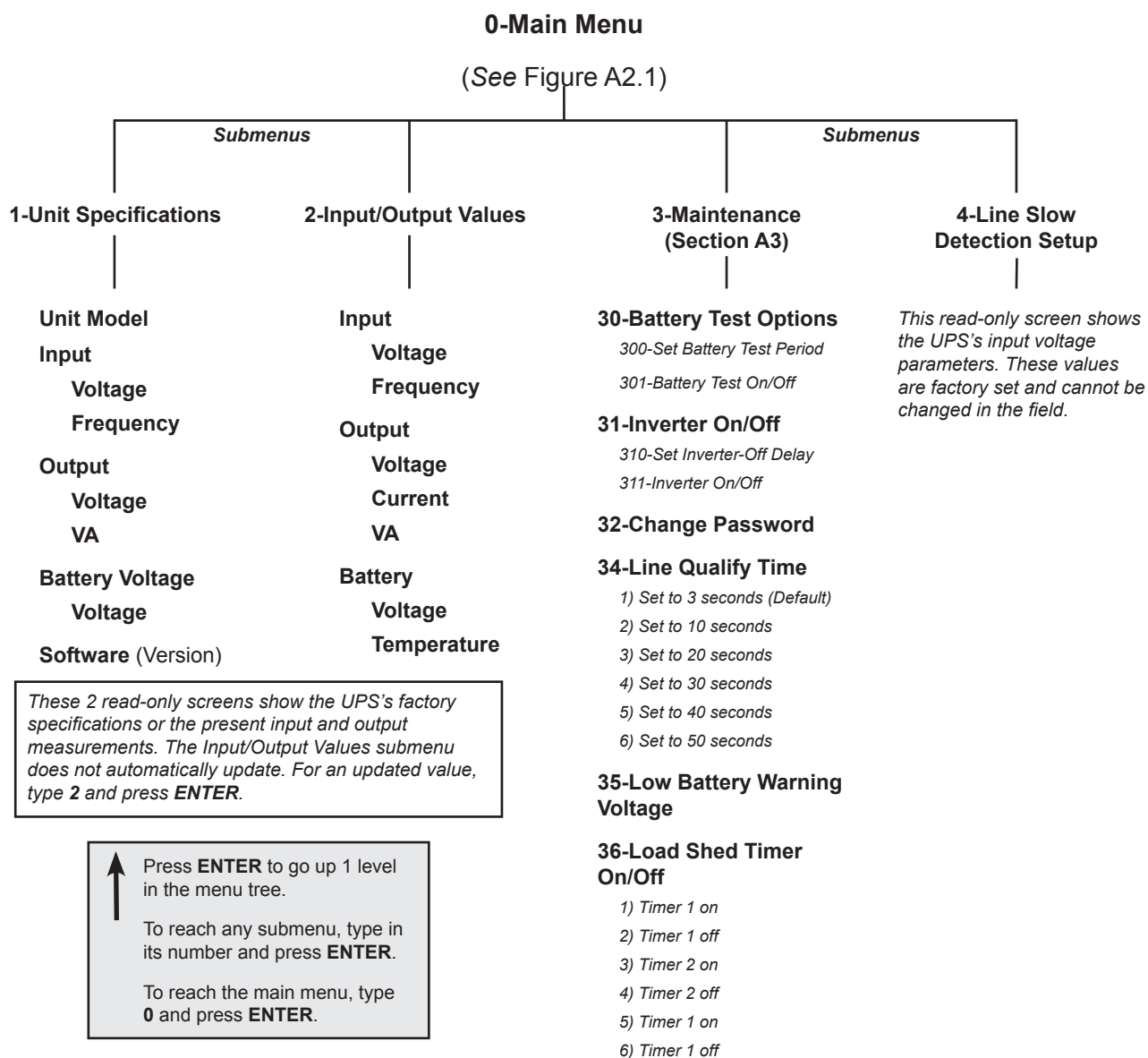
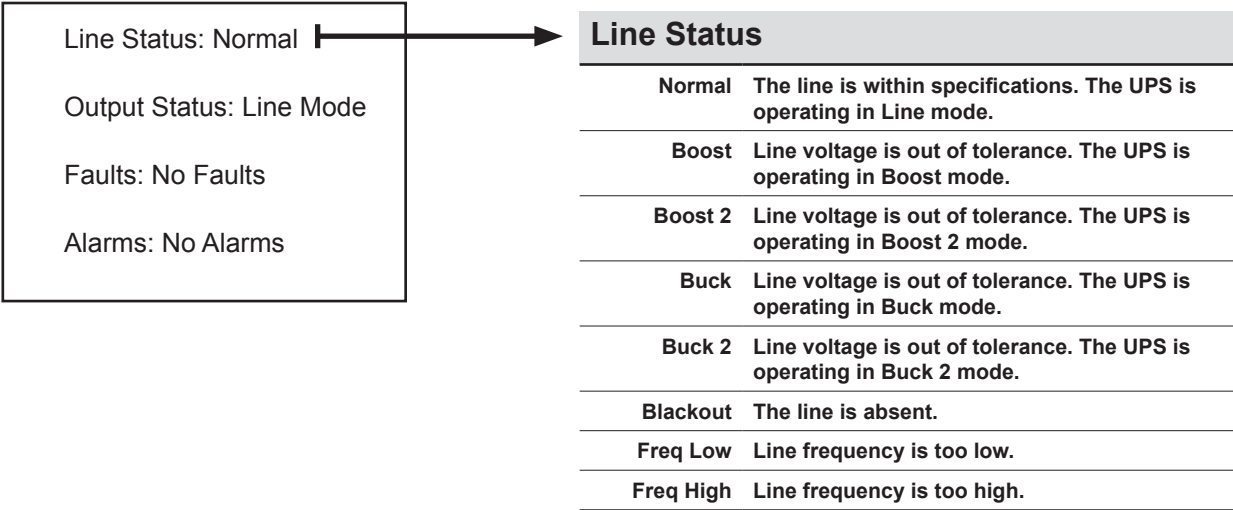


Figure A2.2
RS-232 Menu Tree

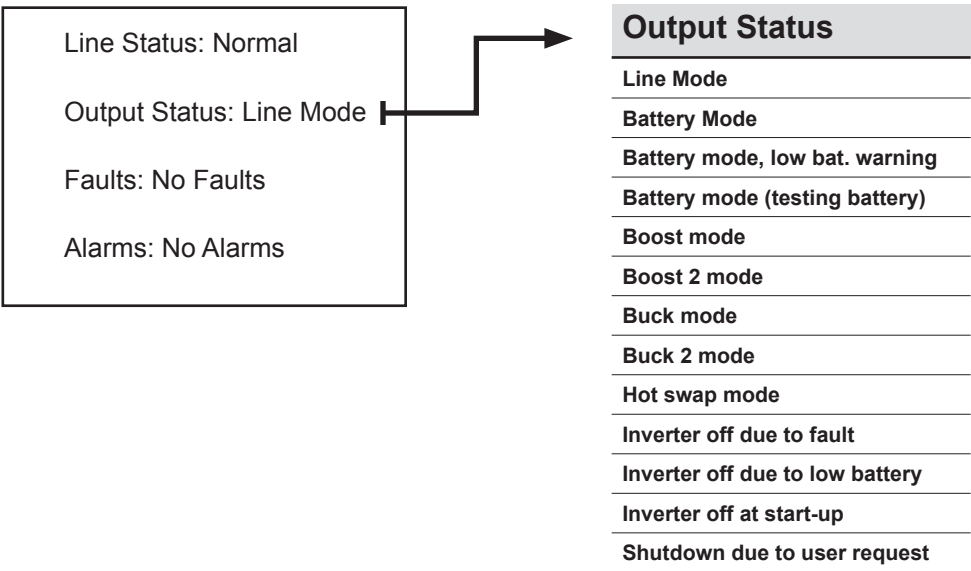
A2.3 Line Status

Line status tells you the line's condition (See *also* Figure A2.1). For an updated value, press **ENTER**.



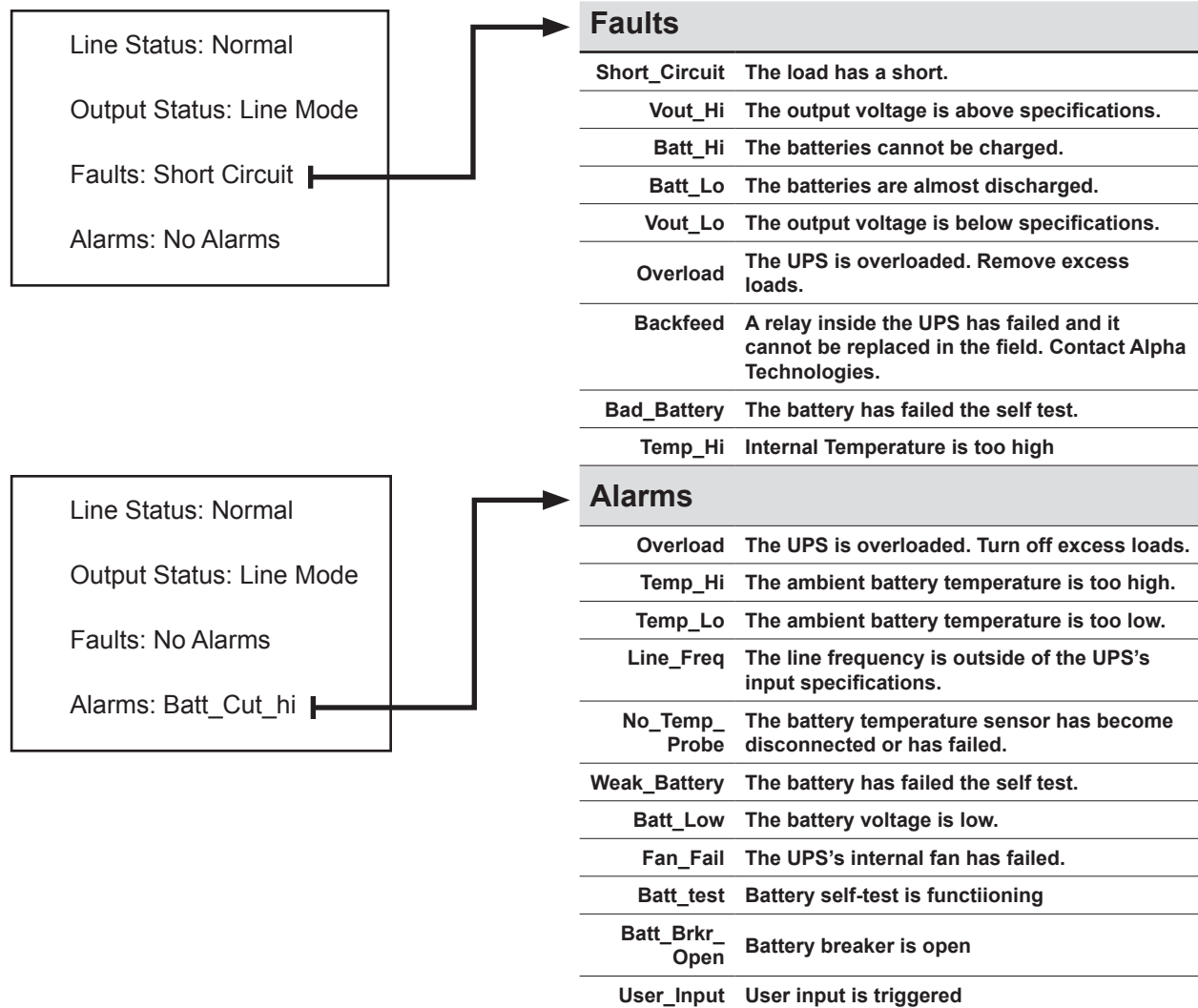
A2.4 Output Status

Output status tells you how the UPS is producing power (See *also* Figure A2.1). For an updated value, press **ENTER**.



A2.5 Fault and Alarm Displays

Provide information about any malfunctions on the UPS.



A3 Operating the UPS

The Maintenance submenu (Figure A3.1) lets you control the UPS and change selected items to meet your operational needs.

Procedure

At the Main Menu (Figure A2.1) type **3** and press **ENTER**.

Maintenance Submenu	
30 Battery Test Options	This starts the self test and sets for how long it will run. The default setting for the test duration is 2 minutes, but this can be adjusted in 1 minute intervals.
31 Inverter On/Off	<p>This switches the inverter on or off to allow you to prevent a deep damaging battery discharge or to provide backup battery power to the load.</p> <p>You can set a delay before the inverter is turned on to allow you time to turn critical loads off. The Set Inverter ON/OFF delay is only available when the UPS is in Battery or Standby modes.</p> <p>The delay can be adjusted in 1 second steps with a default of setting of 0 seconds to a maximum of 600 seconds (5 minutes). The delay is only available in Standby or Battery modes. Once the UPS returns to Line mode, the delay resets itself to 0 seconds.</p>
32 Change Password	This changes the UPS's password. The factory set password is 1111. It can only be changed when the when the UPS is in Line mode. The password must be only 4 numbers (no letters or spaces) long.
34 Line Qualify Time	<p>This lets you set the delay when the UPS goes from Battery mode to Line mode after the line becomes requalified. The purpose of this delay is to make sure the line is stable before the UPS switches back to it.</p> <p>The default setting is 3 seconds, but you can set this to 3, 10, 20, 30, 40 or 50 seconds.</p>
35 Low Battery Warning Voltage	<p>The lets you set the UPS's low battery warning voltage, adjusting the setting to match the batteries you are using and the actual operating conditions.</p> <p>The default value is 40%. To change it type in the % battery voltage level where you want the warning to be triggered at.</p>
36 Load Shed Timer On/Off	This lets you turn the timer contacts on or off.

Figure A3.1
Maintenance Submenu

A4 Programming the Dry Contacts and the Clock

On the surveillance version, the functions of the 2 front panel contacts can be programmed to meet your specifications with RS-232 communications. You can also adjust the unit's date and time.

A4.1 Programming the Dry Contacts

The functions of dry contacts can be changed with RS-232 communications.

For example, to change contact C1:

1. To see how it is currently programmed, type **c1** (all lower case) and press **ENTER**.
2. The UPS responds with ***c1=1** where the * shows the unit responded to your command.

A value of 1 indicates that it is programmed to be the On Battery indicator as shown in the Dry Contact Configuration table below.

Dry Contact Configuration			
1= On Battery	3= Timer 1	5= Fault	7= Timer 2
2= Low Battery	4= Alarm	6= Disabled	8= Timer 3

3. To change the contact, type **c1=X** where X is 1 to 8 and press **ENTER**.

The UPS responds with ***c1=(1 to 8)**. The programming is done for that contact. Repeat as necessary for the other contacts.



Each contact can only be programmed for one function at a time; it cannot show multiple conditions.

4. To reset the contacts to the factory default (C1=On Battery, C2=Low Battery), type **default** and press **ENTER**. The UPS responds with ***default**, showing it is reset.

Finished

Note: The timer contact closes after the UPS has been in battery mode for a pre-programmed amount of time. The default setting is 2 hours (14,400 0.5 second steps) but it can be set to a maximum value of 8 hours (57,600 0.5 second steps). To change the time, after the contact has been programmed to be a timer contact:

1. To see how it is currently programmed, type **timer** (all lower case) and press **ENTER**.
The UPS responds with ***timer=XXXXX** where XXXXX is the setting in 0.5 second steps. For example a reading of 120 shows the timer is set to 60 seconds.
2. To set the timer, type **timer=X** and press **ENTER** where X can be from 1 (0.5 second) to a maximum of 57,600 steps (8 hours).
The UPS responds with ***timer=(value you have set)**.

A4.2 Setting the Date and Time

1. To learn what time and date the UPS is set to, type **clock** (all lower case) and press **ENTER**.

The UPS responds with ***clock=mm/dd/yy hh:mm:ss** where the * shows the UPS responded to your command. It uses a 24-hour clock.

2. To program the date and time type **clock=mmddyy(1 space)hhmmss** (no slashes, colons or spaces between the numbers). Press **ENTER**.

The UPS responds with ***clock=mm/dd/yy hh:mm:ss**. If the date or time change is invalid, it shows the time and date it was set to before you tried making the change.



The date and time must be entered as one complete line; you cannot change only the time or the date alone, both must be set at the same time. If you make a mistake, press ENTER and try again.

Finished

A5 Accessing the 100-Event Log

Up to 100 events are stored in the UPS's log. If more than 100 events occur, the oldest is over written.

Procedure

- To see the log, type **event** (all lower case) and press **ENTER**. The events are listed starting with the most recent and appear as:

Event #	Date	Time	Alarm	Fault	Mode
eventX=12/25/99	01:45:59	000000000000000000, 000000000000000000, 000			

For details on these readouts, see below.

Alarm: When the following bits show a 1, it is displaying the following alarms.

000000000000000000

0	UPS Overloaded
0	Fan Fail
0	Battery Test
0	Battery Temperature High
0	Battery Temperature Low
0	Battery Voltage Low
0	Temperature Probe Unplugged
0	Input Frequency Out Of Range
0	User Input
0	Battery Breaker Open
0	Weak Battery

Fault: When the following bits show a 1, it is displaying the following faults.

000000000000000000

0	UPS Overloaded
0	Short Circuit
0	Internal Temperature High
0	Output Over Voltage
0	Output Below Voltage
0	Battery Over Voltage
0	Battery Low Voltage
0	Blank (Not Used)
0	Battery Failed
0	Back Feed

Code	Mode	Code	Mode	Code	Mode
000	Standby	003	Boost 1	006	Inverter
001	Line	004	Buck 1	009	Shut down
002	Boost 2	005	Buck 2	010	Bypass

- If less than 100 events occurred, the last entry appears as:

eventX=00/00/00 00:00:00 000000000000000000, 000000000000000000, 000

- To clear the log, type **eventclr** and press **ENTER**.

It takes the UPS 30 seconds to clear the log. Do not enter any other commands during this time.

- To see a specific event, type **eventX** where X is from 1 to 100 and press **ENTER**. To see a range of events (for example, events 20 to 30), type **eventX-X** where X are events from 1 to 100 and press **ENTER**.

Finished

A6 Installing and Using the Novus User Software

A6.1 Introduction

The Novus User Software Graphical User Interface (GUI) provides Web or Windows® like computer communications with the UPS. The screen and its features are shown below in Figure A6.1. With it you can monitor, control and set various parameters like the date and time, when the weekly self test is run, change the relay configurations, etc. The Fault or Alarm indicators show you if the UPS has a malfunction and what it is. Descriptions of all the screens and their functions are given in Section A6.4, "Operation."

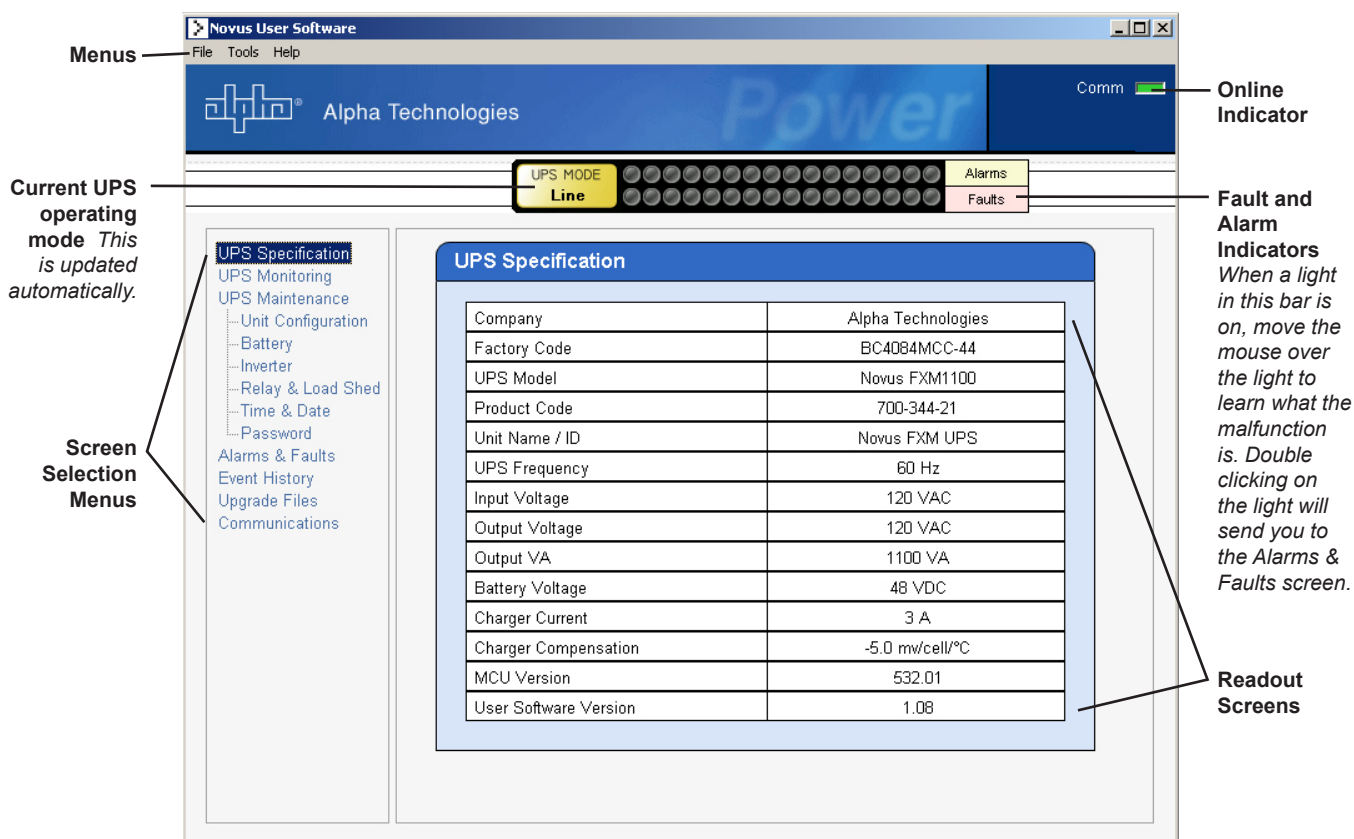


Figure A6.1
Novus User Software (UPS Specification Screen Shown)

A6.2 Checking Your Windows Computer for the .NET Framework

1. Click on the **Start** button.
2. Go to **Settings** (for Windows 98, ME and 2000 only).
3. Click on **Control Panel**.
4. Double-click on the **Add or Remove Programs** icon.

When a window similar to the one shown in Figure A6.2 appears, scroll through the list of applications. If you see Microsoft .NET Framework listed, the Framework is already installed and you can install the Novus User Software. If you don't see it listed, you **MUST** install it from the Microsoft Windows update web site before installing the software (the Framework is free).

If you are downloading from Microsoft's Windows Update web site, you must have Internet Explorer installed on your computer. In addition to installing the .NET framework, downloading from the web site updates your computer with all the latest security updates. If your computer is part of a company network, you should ask your network administrator if you can download software from the internet.

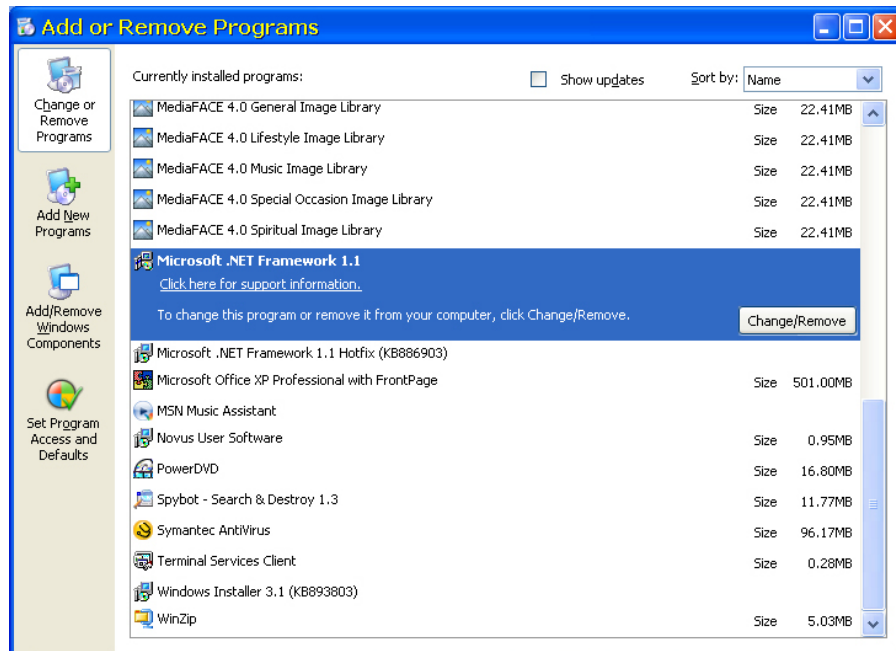


Figure A6.2
Add or Remove Programs Window

A6.3 Installation and Set Up

Tools and Materials Required

- Novus User Software (available for download from www.alpha.com). It is packaged as a Zip file, so you have to un-zip it and save it where you can access it.
- Computer with at least Windows 98 with Microsoft's .NET framework installed.
- Standard DB–9 serial straight-through computer cable.

Procedure

1. Install the Novus User Software onto your computer. Restart the computer.

If you install the user software on a version of Windows without the .NET framework installed (See Section A6.2), you will get an error message saying the framework is not installed. Install the free framework onto your computer, restart your computer then try again to install the software.

2. Connect the computer cable from any available communications port on your computer to the RS-232 port on the UPS's front panel (See Section A1, "Wiring the RS-232 Port").
3. Set the communications parameters on your computer to:
 - **COM Port:** The COM port on your computer you have selected to use.
 - **Baud Rate:** 2400.
4. To start communications between the computer and the FXM:

Click on the screen's **on-line indicator**.

OR

In the **File** menu, click on **Connect to Novus**.

If the computer cannot to connect to the UPS, a pop up screen appears asking you to check the wiring and that you are connected to the proper com port.

Installation Finished

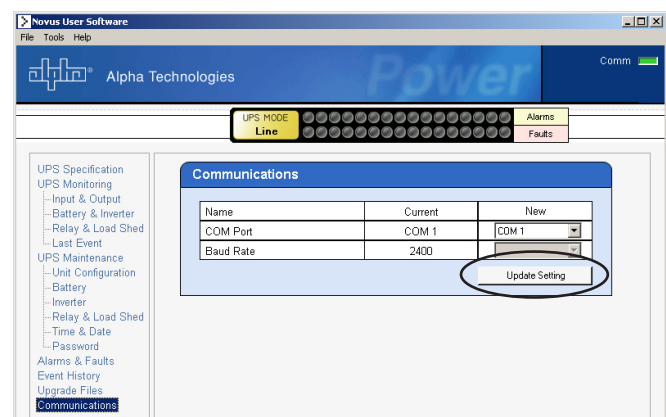
A6.4 Operation

The various screens are described on the following pages and operate like Web or Windows-type screens. Point and click to change the various functions or fields.

The on line indicator shows if you are connected to the UPS. This GUI automatically polls the UPS to obtain its status. The default setting is polling once every 3 seconds, but you can change this in the UPS Maintenance-Unit Configuration screen in the "Status Refresh Time" menu.

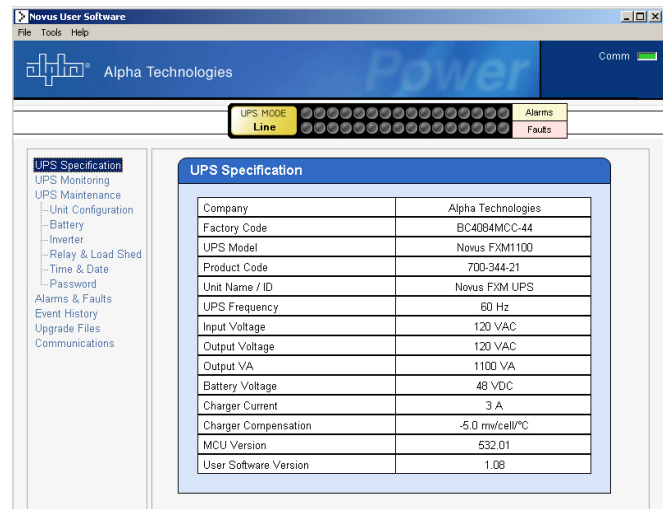
If any light is active in the Fault or Alarm fields the UPS has a malfunction. Place your mouse over the light to learn the type of malfunction or click on it to go straight to the Alarms & Faults screen.

To control the unit or change it's settings or parameters, either click on the **On/Off** buttons, or choose an item from a drop down menu. Then click on the **Update Setting** button. If you do not click on this button, the change will not be communicated to the UPS..



UPS SPECIFICATION

This read-only screen shows the UPS's factory-set specifications.



UPS MONITORING

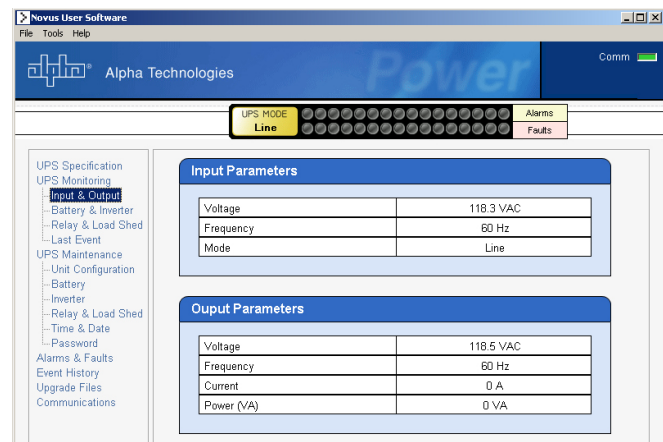
These read-only screens show the UPS's current input and output values and other measurements.

Input & Output: This shows you the current line input and UPS output values and the UPS's present operating mode.

Battery & Inverter: This shows you the battery string's status as well as how many times and for how long the inverter has been active.

Relay & Load Shed: This shows you how the front panel dry contacts are configured. If any relays are used for load shedding, it shows the time they are set to.

Last Event: This shows you the last event the UPS went through. It shows what fault or alarm triggered the event.



UPS MAINTENANCE

These screens let you adjust the UPS to meet your operating needs. To change any parameter, either click on the **On/Off** buttons, or choose an item from a drop down menu. To make the change, click on the **UPDATE SETTING** button. If you do not click the button, the change will not happen.

Unit Configuration: This lets you set the UPS's name, input, output and how often the GUI polls the UPS.

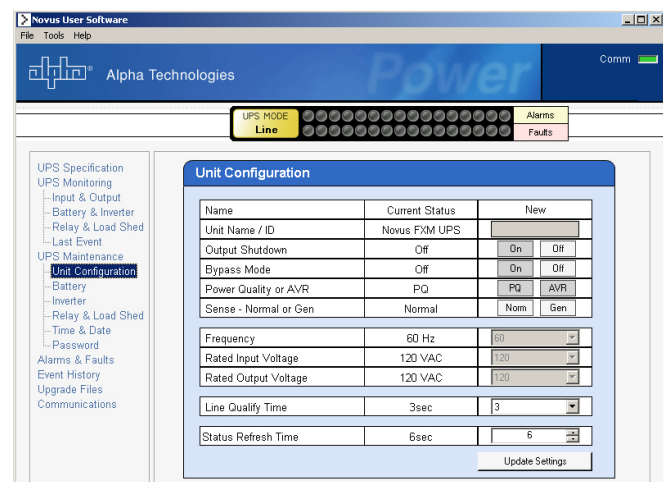
Battery: This lets you set the battery string voltage, charging parameters, when the low battery warning happens, starts the battery test and sets when the periodic battery test should occur.

Inverter: This lets you turn the inverter on or off to start or stop backup battery power to the load.

Relay & Load Shed : This lets you set the front panel's dry contact configuration.

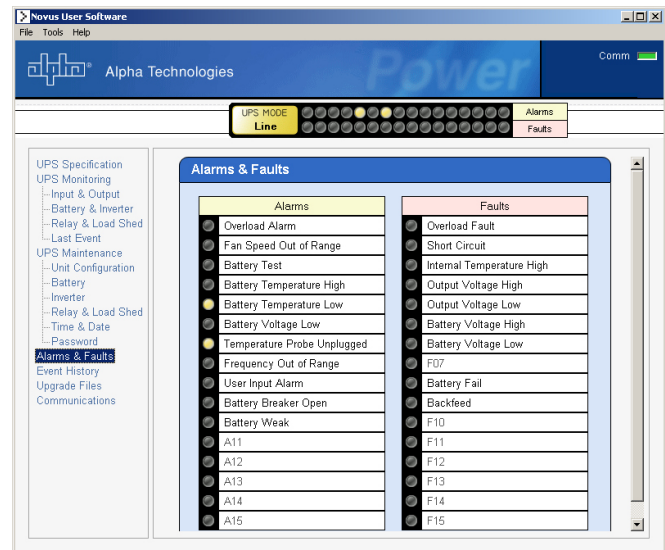
Time & Date: This lets you set the UPS's date and time.

Password: This lets you set the UPS's password. The factory set password is 1111.



ALARMS & FAULTS

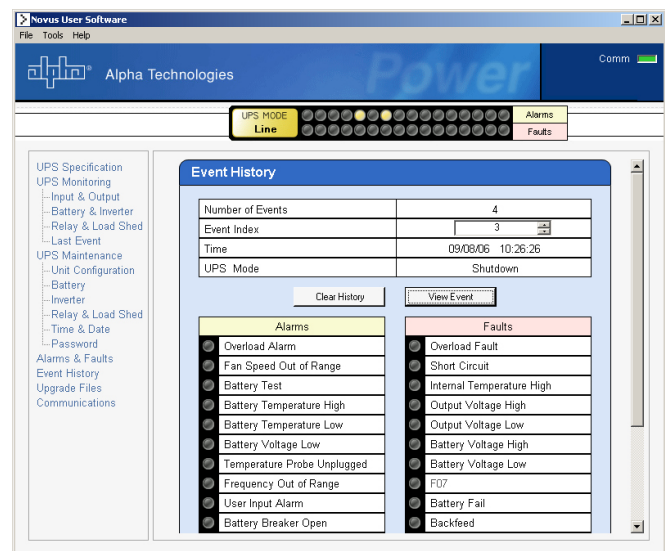
This read-only screen shows you what malfunctions the UPS has. When the fault or alarm indicators on the horizontal bar are lit, place your mouse over the light to learn what it is, or click on the light to go straight to this screen.



EVENT HISTORY

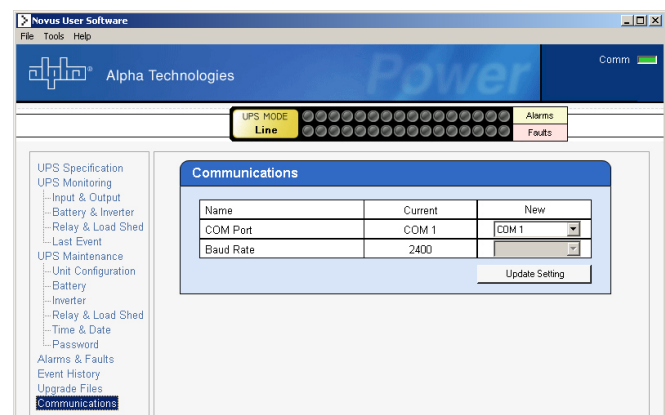
This screen shows you the last 100 events the UPS went through. Choosing a number in the **Event Index** list box and then clicking on the **Show Event** button will show you the event, when it happened and what fault or alarm caused it.

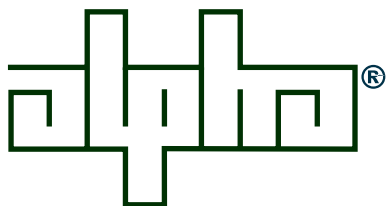
Clicking on the **Clear History** button clears the log. This action cannot be undone.



COMMUNICATIONS

This screen changes the UPS's communication parameters. You cannot change the RS-232 Baud Rate.





LIMITED 24-MONTH WARRANTY AC PRODUCTS

Alpha Technologies warrants its equipment to be free of manufacturing defects in material and workmanship for a period of 24 months from the date of manufacture. The liability of Alpha Technologies under this warranty is solely limited to repairing, replacing, or issuing credit for such equipment (at the discretion of Alpha Technologies), provided that:

1. Alpha Technologies' Customer Service Department is promptly notified, by facsimile or telephone, that a failure or defect has occurred.
2. Alpha Technologies' Customer Service Department issues a Return Materials Authorization (RMA) number, and designates the service location. The RMA must be clearly marked on the outside of the shipping container.
3. Purchaser is responsible for all in-bound shipping and handling charges (COD and freight collect will not be accepted without prior approval from Alpha Technologies); Alpha Technologies will pay out-bound surface shipping charges for return of repaired equipment.
4. A satisfactory examination of the returned UPS by Alpha Technologies' Service personnel shall disclose that defects have not been caused by misuse, neglect, improper installation, repair, alteration, or accident, or failure to follow instructions furnished by Alpha Technologies. If Alpha Technologies' Service personnel determine that the UPS has been damaged due to one of these causes, or if the UPS is free of defects, a handling or repair fee may be assessed prior to returning the UPS.

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Any action for breach of this limited 24-month warranty must be brought within a period of 24 months from date of manufacture.

This limited 24-month warranty does not extend to any UPS that has been repaired or altered by any party other than Alpha Technologies or its Authorized Service Center.

Alpha Technologies reserves the right to discontinue particular models and to make modifications in design and/or function at any time, without notice and without incurring obligations to modify previously purchased UPSs.

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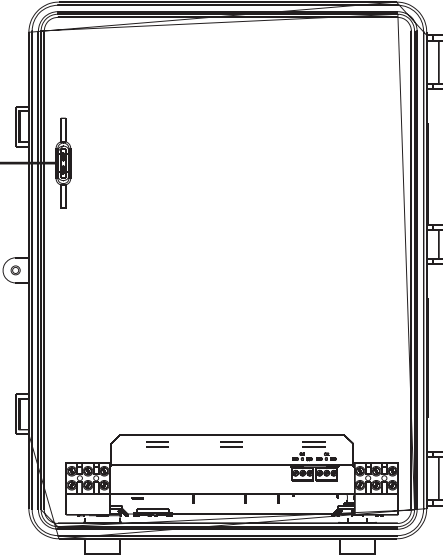
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Emergency Shutdown Procedure

The Novus Micro Secure 100 does not have an on/off switch. Whenever it senses battery or line power, there is power present at the outputs and the unit is active.

1. Turn off the circuit breaker providing line power to the unit.

2. Remove the battery fuse



For emergency technical support 7 days a week/24 hours a day, call:

USA: 1 800 863 3364

Canada: 1 800 667 8743

www.alpha.com

Complete the following for your records

Serial # _____

Options _____

Purchase Date _____

This Novus Micro Secure 100 was purchased from

Dealer _____

City _____

State/Province _____

Zip/Postal Code _____

Country _____

Telephone # _____

Fax # _____

E Mail Address _____

Power

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